
Exploring Aquifers Lesson Six: “Water Regulations and Policies”

Academic Questions: What is the Safe Drinking Water Act and how does it relate to Texas aquifers?
Why is pumping aquifer water regulated?

Objective(s):

- To understand how water is regulated at a national and statewide level
- To understand the basic policy choices faced by Texans, including: regulating pumping, rule of capture, and groundwater districts
- To understand the importance of these policies to aquifers

Key Terms: Rule of Capture, Safe Drinking Water Act
[Click here for definitions to Exploring Aquifers vocabulary.](#)

Process (Activities):

1. Before you begin this lesson you will need to gather a copy of the Water Quality Report from your local water supplier. This report is mandated by the EPA and is mailed on July 1, of each year. The report explains where your water comes from and what is in it. Many of these reports are online. For example, the Austin water quality report is at: <http://www.ci.austin.tx.us/water/index.htm>. The EPA's Office of Water has a searchable database of online water reports for Texas on its website at: <http://www.epa.gov/safewater/dwinfo/tx.htm>. If your water does not come from an aquifer, copy the San Antonio Water System Water Quality Report at: <http://www.saws.org/functions/waterquality/index.shtml>.
2. Allow students to review their local Water Quality Report. Ask students what they can learn from the report.
3. Explain to students that this report was mandated by the Safe Drinking Water Act (SDWA), a federal law enacted to protect the quality of water we drink. Under SDWA, EPA sets standards for drinking water quality and oversees the governments and business water suppliers who insure those water quality standards are met. In 1996, Congress amended the Safe Drinking Water Act to include the public right-to-know, resulting in yearly Water Quality Reports. Have students research more about the Safe Drinking Water Act on EPA's Office of Water web site at: <http://www.epa.gov/safewater/sdwa/sdwa.html>.
4. Have a discussion about the state laws in Texas that regulate water. Share the following information:

Water regulations in Texas are generally divided into two categories: groundwater and surface water. Groundwater law, which pertains to any water that is underground, is fairly limited. Groundwater includes water percolating through soil and rock, underground flow in confined channels, artesian water, and stream underflow. In Texas, groundwater is considered the property of the owner of the surface property from which it is pumped - much like a mineral or oil and gas. The English common law of "rule of capture" is in force. The rule of capture allows property owners to pump water from beneath their land without fear of lawsuits. The rule of capture provides that a landowner is not liable for groundwater pumping except in the case of willful waste,

malice, or subsidence. Generally, surface water is owned by the state. All natural streams, rivers, lakes, watersheds, and bays of the Gulf of Mexico are considered property of the state. There are exceptions, however. Surface water can be used for domestic purposes and for livestock. Texans who own property next to a body of water are free to make reasonable use of it.

Recently there has been a great deal of activity in the Texas legislature concerning new water regulations with the passing of Senate Bill 1. In June 1997, Governor George W. Bush signed into law Senate Bill 1 (SB 1), comprehensive water legislation enacted by the 75th Texas Legislature. This comprehensive water legislation was an outgrowth of increased awareness of the vulnerability of Texas to drought and to the limits of existing water supplies to meet increasing demands as population grows. The state's population is expected to increase from its current level of about 19 million to more than 39 million people by the year 2050.

With passage of SB 1, the Legislature put in place a local water planning process designed to ensure that the water needs of all Texans are met as Texas enters the 21st century. SB 1 allows individuals representing 16 regions to serve as members of Regional Water Planning Groups (RWPG) to prepare regional water plans for their respective areas. These plans will map out how to conserve water supplies, meet future water supply needs, and respond to future droughts in the planning areas.

5. Ask students to research the Regional Planning Group regional water plans to determine the following:
 - How do these plans conserve water supplies?
 - How do these plans respond to drought conditions?
 - Is there a plan for increased population and other future water supply needs?
 - Do plans consider the need to other living things that rely on these water sources?

Product/Application: Ask students to determine how the Regional Water Planning Group recommendations will impact aquifers.

Assessment/Evaluation: Ask students to describe the pros and cons of the different Regional Planning Group regional water plans.

Resources:

TNRCC's Surface Water Rights in Texas: How They Work and What to Do When They Don't
<http://www.tnrcc.state.tx.us/admin/topdoc/gi/228/>

EPA's Office of Water, Drinking Water, and Health: What you need to know
<http://www.epa.gov/safewater/dwhealth.html>

A list of water right articles compiled by the Real Estate Center:
<http://recenter.tamu.edu/pubs/catwatr.html>

LSU Ag Center's slide show of water uses and legislation
<http://www.agctr.lsu.edu/lawater/ppt/Ronkaiser/sld002.htm>

Ground Water Information from the Texas Water Development Board
<http://www.twdb.state.tx.us/publications/reports/GroundWaterReports/GWReports/R345%20Aquifers%20of%20Texas/Majors/Intro%20only.pdf>

Time Frame: One 45-minute class period

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Grade Level: 6th-12th

TEKS Correlation:

Science

Grade 6: 6.1, 6.2, 6.3, 6.4

Grade 7: 7.1, 7.2, 7.3, 7.4

Grade 8: 8.1, 8.2, 8.3, 8.4

Aquatic Science: (b)1 8.B,C

Environmental Science: (b)1, 5.B,E,F, 7.C

Mathematics

Grade 6: 6.1, 6.8, 6.11, 6.12, 6.13

Grade 7: 7.3, 7.4, 7.9, 7.13, 7.14, 7.15

Grade 8: 8.5, 8.14, 8.15

Geometry: 6

Precalculus: 2

Technology Applications (Computer Literacy)

Grades 6-8: 2, 4, 5, 7, 8

Social Studies

Grade 6 6.21, 6.22, 6.23

Grade 7 7.8, 7.21, 7.22, 7.23

Grade 8 8.10, 8.30, 8.31, 8.32

English

Grade 6: 6.1, 6.2, 6.5, 6.13, 6.17, 6.20, 6.22, 6/24

Grade 7: 7.1, 7.2, 7.5, 7.13, 7.17, 7.20, 7.22, 7.24

Grade 8: 8.1, 8.2, 8.5, 8.7, 8.10, 8.13, 8.17, 8.18, 8.20, 8.22, 8.24

English I: 1, 4, 6, 8, 13, 15, 16, 21

English II: 1, 4, 6, 7, 8, 13, 15, 16, 21